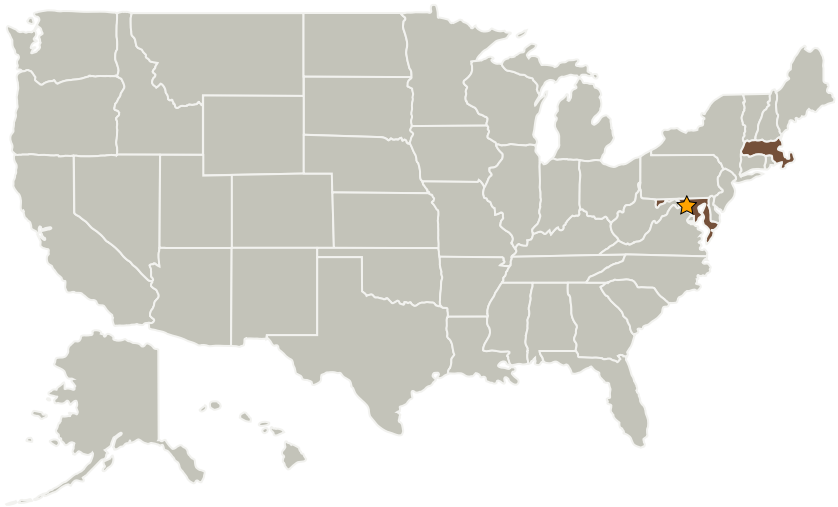
Miniaturized Airborne Imaging Central Server System, Phase I

Completed Technology Project (2008 - 2008)

Project Introduction

The innovation is a miniaturized airborne imaging central server system (MAICSS). MAICSS is designed as a high-performance-computer-based electronic backend that integrates a complete set of power and signal interfaces to serve a suite of advanced LWIR, MWIR, EO, and hyperspectral imaging sensors and an inertial measurement unit for atmospheric and surface remote sensing. MAICSS records continuous precision geo-referenced and time-tagged multi-sensor throughputs to mass storage devices at a high aggregate rate, typically 60 Megabytes/sec. MAICSS compatible sensor packages include 1) NASA's 1024 x 1024 pixel MWIR/LWIR dual band QWIP imager, 2) a 39 Megapixel BuckEye EO camera, and 3) a fast (e.g. 200+ scanlines/sec) and wide swathwidth (e.g. 1920+ pixels) CCD/InGaAs imager based VNIR and SWIR imaging spectrometer. MAICSS consists of a suite of interchangeable and interconnected modules in precision-machined boxes for flexible system deployment. It has a total solid state compact design with a typical volume of 0.02 m3 and a mass of 16kg. Without hard drives and other moving parts, it is operational at high altitudes and survivable in high vibration environments. MAICSS is a complete standalone imaging server instrument with an easy-to-use software package for either autonomous data collection or interactive airborne operation.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Flight Landata, Inc.	Supporting Organization	Industry	North Andover, Massachusetts

Primary U.S. Work Locations	
Maryland	Massachusetts

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Xiuhong Sun

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  - TX05.1 Optical Communications
    - TX05.1.5 Atmospheric Mitigation